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New Onset Back Pain in a Young Patient with Undiagnosed Inferior Vena Cava Atresia



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Case Abstract

We describe the emergency department (ED) and hospital course of a young male patient that came in with a chief complaint of lower back pain and was ultimately diagnosed with an acute deep venous thrombosis (DVT) precipitated by an underlying congenital abnormality of the Inferior Vena Cava (IVC). Often lower back pain in young patients can be dismissed as musculoskeletal back pain. It is for this reason, that doing a thorough review of systems and physical exam is so critical. Congenital variations or anomalies of the IVC are relatively uncommon but must be on the differential with patients presenting with back pain and symptoms involving multiple organ systems.

Case Presentation

An 18 year old male with a history of obesity and hypertriglyceridemia, presented to the ED for bilateral lower back pain. The pain started roughly 3 weeks prior when he was helping his nephew move and felt sudden onset lower back pain. On the day the patient presented to the ED, he woke up alarmed because he noticed that his entire right leg was pale and blue. While in the ED, the patient began to have diffuse abdominal pain with vomiting, but denied any weakness of any extremities, numbness, tingling, urinary, or fecal incontinence.

On exam, patient was uncomfortable appearing. Initial vital signs: Temp 36.7 C, pulse 104, blood pressure 131/84, respiratory rate of 16, and 100% O2 saturation. He had an unremarkable cardio-pulmonary exam. His abdomen was diffusely tender to palpation. The right leg did appear pale compared to the left leg and right posterior tibialis and dorsalis pedis pulses were only found on Doppler. Patient continued to be uncomfortable despite receiving Valium and Toradol.

Blood work showed a WBC of 17.1, CPK was 173 and no other significant abnormalities. Right lower extremity venous duplex showed diffuse acute DVT of the right common & external iliac veins, common femoral vein, popliteal vein, small and great saphenous and peroneal veins. CT angiography of the abdomen with run-off showed extensive retroperitoneal abdominal adenopathy extending into the pelvis with partial encasement of vascular structures. Findings were suspicious for underlying lymphoma. Patient was started on a high intensity heparin drip and then transferred for hematology and oncology evaluation at our tertiary care center.

During inpatient admission, patient had catheter directed thrombolysis of the right-sided lower extremity veins by interventional radiology with a CT venogram abdomen pelvis which showed a severely atretic infra-hepatic inferior vena cava identified with numerous thrombosed retroperitoneal collateral veins present. The CT Venogram showed that the findings that had once looked liked retroperitoneal adenopathy was actually thrombosed retroperitoneal collateral veins. Ultimately the patient was discharged home after being started on Xarelto and coordinated follow up with Vascular Surgery as an outpatient

Severe Inferior Vena Cava Thrombosis

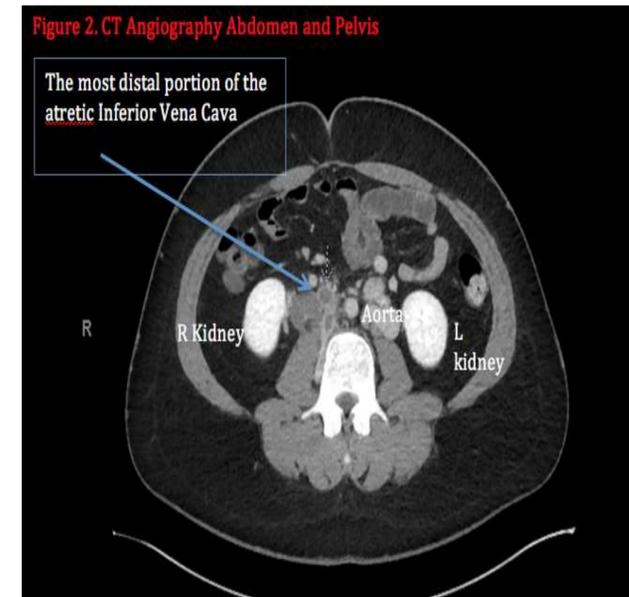
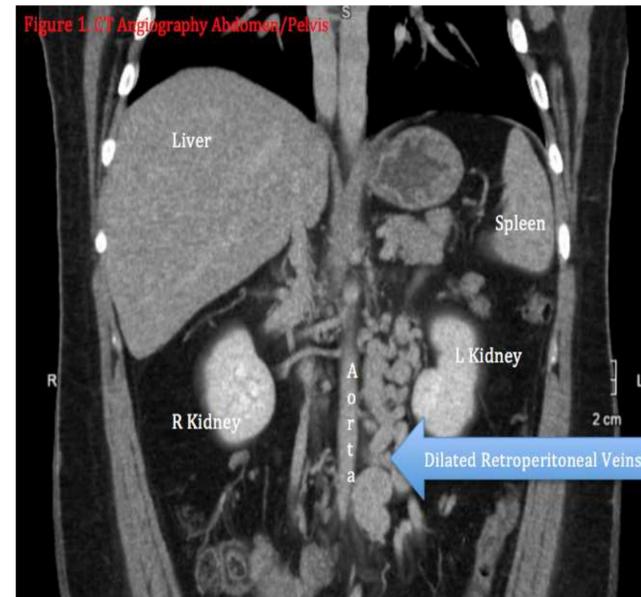
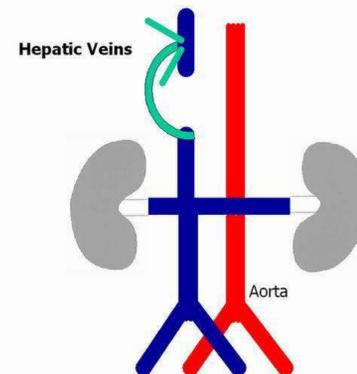


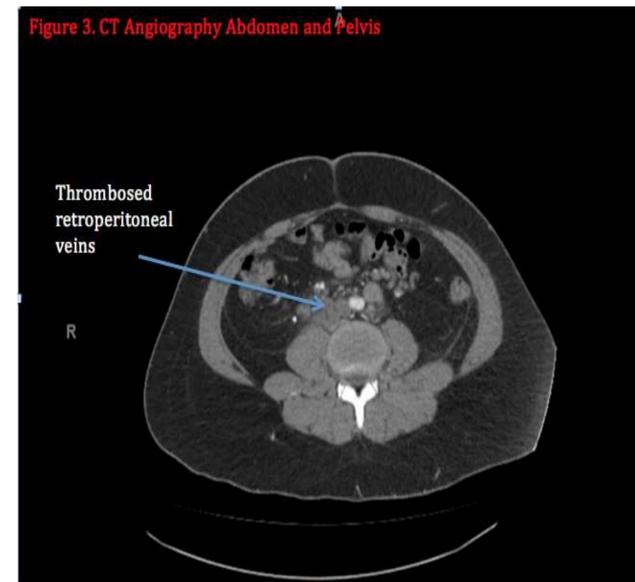
Figure 1 and Figure 2: CT Angiography of Abdomen and Pelvis showing severe dilatation of retroperitoneal veins, IVC thrombosis and collateral vein thrombus burden as well.

Inferior Vena Cava Atresia

Atresia of the Hepatic Segment of IVC with HV Continuation



In Inferior Vena Cava Atresia venous return is through collateral veins to return to the heart. When these veins become over-distended venous stasis ensues leading to deep venous thrombosis



Discussion

- Inferior vena cava atresia or agenesis is an uncommon abnormality. It is presumed to be a congenital abnormality.¹
- Congenital variations or anomalies of the vena cava occur with a reported prevalence of 0.07% to 8.7%.² The prevalence of young adult patient's with DVT in the context of IVC anomalies is in the range of 5% in patient's under 30 years of age.³
- This condition can cause distension of collateral veins in the abdomen, back, and thigh. In our patient's case, increased physical activity may have caused increased demand on the venous drainage system that could not be met by the venous collaterals.
- These prominent venous collaterals thrombosed and were likely responsible for the patient's initial complaint of back pain. The patient's distended venous collaterals also likely contributed to significant venous stasis causing patient's deep venous thrombosis.
- A young man coming in with a normal neurological exam and lower back pain that started while he was moving furniture could have easily been dismissed as musculoskeletal back pain.
- It was the nuances in his history and physical, such as waking up with a pale leg, calf tenderness on exam, and lack of relief with analgesics, which prompted further testing.

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